The online supplementary materials include:

- A PDF file (tmvn_JASA_supplement.pdf) that contains additional plots, proofs of main results in the manuscript, remaining technical results and additional details on numerical studies.

- Data sets and code files:

  1. **example_mon_function.R** : illustrates numerical examples of four monotone functions in Section 4.3 of the manuscript, which contains functions of fitting the model (4.2) in the manuscript with the proposed DGL prior, the IGL prior, and tMVN prior, respectively. The implementation of the method proposed by Lenk and Choi (2017) via the R package **bsamGP** is also included.

  2. **real_applications.R** : illustrates the real data analyses for considered two data sets in Section 5 of the manuscript. The real data sets are readily available for public use and accessible through R packages:

     - The **age.income** data set in R package **SemiPar** for the Age and Income data;
     - The **lidar** data set in R package **HRW** for the data from the LIght Detection And Ranging (LIDAR) experiment.

  3. **all_models.R** : contains all functions for fitting the model (4.2) in the manuscript incorporated with various priors as below:

     - DGL prior with the Matérn kernel (under non-decreasing and non-increasing constraints separately);
     - DGL prior with the Squared-Exponential kernel;
     - IGL prior;
     - tMVN prior with an improper prior on τ^2 (global shrinkage only, under non-decreasing and non-increasing constraints separately);
     - tMVN prior with a half-Cauchy prior on τ (global shrinkage only);
     - tMVN prior with no shrinkage (fix $\tau = 1$) and with hyperparameter updates;
     - tMVN prior with no shrinkage (fix $\tau = 1$) and no hyperparameter updates.

  4. **all_base_functions.R** : collects all of the base functions used in the file all_algorithm.R.